

OTCA19
Screening for osteoporosis in the general population
Plain language summary

What has been assessed and why?

Bone density generally decreases with age. However, this decrease is greater in some people than in others. If a person's bone density falls below a certain level, he or she is considered to have osteoporosis. The bones become less stable and may fracture more easily. The disease mainly affects women after their menopause and elderly people.

The aim of screening is to identify people with osteoporosis who are not aware that they have this condition. Once the disease has been diagnosed, they can receive treatment that might help to make the bones more stable and prevent fractures. Internationally, osteoporosis screening is currently recommended and paid for in only a few healthcare systems, but not in Europe.

The aim of this report was to assess whether screening for osteoporosis in the general population offers an advantage over no screening, focusing on the prevention on fractures as well as on side effects.

How has this assessment been done?

We used the results of previous studies and included two study types. In the first type, healthy people were randomly divided into two groups. Only one group was screened for osteoporosis and treated if osteoporosis was found. The other group did not receive screening, but could still receive treatment if osteoporosis was detected, for example by their family doctor. In the second type, all healthy participants were screened for osteoporosis. All patients with newly found osteoporosis were then randomly divided into two groups. One half received drug treatment, the other half did not. In comparison with the first study type, this second type is much weaker, as it focuses more on the effects of treating osteoporosis than on screening for osteoporosis. Since in the second study type information is provided on how people fare with a negative screening test, it would not be noticed if, for example, some people with a negative screening test suffered from osteoporosis but were neither diagnosed nor treated.

The authors of the present report performed extensive searches for relevant studies. All studies and their results were assessed for quality. Statistical techniques were used to summarise the results. Relevant studies published by May 2019 were included in the assessment.

What are the results?

We included 3 studies comparing screening with no screening and including 49,912 elderly women. Screening in most cases involved a 3-step strategy: a questionnaire on risk factors for all participants (mainly a fracture risk assessment tool called FRAX), X-ray measurement of bone density for those at increased risk, and treatment for those with a high risk of fracture. We also identified 5 studies examining drug treatment in 8,844 women. Before participating in the study, these women had taken part in screening for the general population and had been found to have osteoporosis.

The women were followed between 1 and 6 years after screening. In the 2 largest screening studies, the women were followed for 5 years. The information available showed that screening probably has little or no effect on fractures; however, results on hip fractures were unclear. The underlying data were of moderate quality overall because the results and design of the studies varied. High-quality data also showed that screening has no effect on mortality. With regard to serious side effects, screening may make little or no difference if the drug zoledronic acid is given after a positive screening result; however, these data were of only low quality. With regard to other outcomes, such as other side effects or back pain, data were either too scarce to draw conclusions or not available at all.

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What are the conclusions?

Screening for osteoporosis in elderly women has probably little or no benefit, since moderate-quality studies show no consistent effect of screening on the rate of fractures. These results are valid for a screening-treatment strategy including the FRAX questionnaire on risk factors and the X-ray measurement of bone density. The results are probably not applicable to other screening strategies. No studies were found on osteoporosis screening in men or younger women.